Original Research Article

Morbidity profile of communicable diseases in a tertiary care hospital of Chandrapur, Maharashtra

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Received: 16 January 2018
Accepted: 10 February 2018

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ABSTRACT

Background: Worldwide, developed and developing countries are facing the double burden of communicable and non-communicable diseases. However, developing countries like India is more exposed and vulnerable due to multitude of factors. Objectives were to study the morbidity patterns of communicable diseases of indoor patients at tertiary care hospital and find out the seasonal distribution of the communicable diseases.
Methods: A retrospective study was done over a period of 1 year from April 2016 to March 2017. 4766 admitted patients of communicable diseases were included using universal sampling method. Diagnosis was categorized as per International classification of Disease (ICD) 10 classification. Data was analyzed using spss 16.
Results: Out of the total 4766 admitted patients, 62% were females and 38% were males. 56.40% patients admitted in the most productive age group (15-45 years) followed by 14.35% and 8.06% geriatric population and under 5 children respectively. Peak in admission was seen in monsoon season (July to Sept.). 34.54% patients were admitted for bacterial cause followed by 30.03% acute gastroenteritis (AGE). AGE, viral fever, malaria were more commonly seen in female while typhoid, measles, tuberculosis were more commonly seen in male.
Conclusions: Many diseases have a seasonal variation and the burden of these diseases could be reduced if we take measures to detect the changes in their trend through the implementation of surveillance programs.

Keywords: Morbidity, Communicable, Seasonal, ICD

INTRODUCTION

Communicable disease is an illness due to specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal or from the environment (through air, dust, soil, water, food, etc) to man or animal.[1]

Despite decades of economic growth and development in countries that belong to the World Health Organization (WHO) South-East Asia region most countries in this region still have a high burden of communicable diseases. Communicable diseases remain the leading cause of morbidity and mortality in developing countries, like India.

From the time of Alma Ata declaration to the achievement of "Millennium development goals", lot of planning, effort and public expenditure has been devoted to improve the health of the people both in rural and urban areas in India.

A comprehensive analysis of morbidity pattern and seasonal variation of diseases in a region or a health care setting provides an efficient tool for the health planners for the formulation of policies.

Our study aims at studying existing disease burden for communicable diseases and seasonal variations in a tertiary care institution reflecting the disease burden in the community. The objectives of the study were to:

1. To study the morbidity patterns of communicable diseases of indoor patients at tertiary care hospital.
2. Find out the seasonal distribution of the communicable diseases.

METHODS

The study was carried out at a tertiary care hospital attached to Government Medical College, Chandrapur, Maharashtra, India. The retrospective hospital record based study was carried out over a one year period of April 2016 to March 2017. Data was collected from medical record department regarding all admitted patients of communicable diseases. Universal sampling method was used to enroll infectious disease patients. During the study period, patients of communicable diseases were 4766. Data was collected in the form of age, sex and morbidity. Diagnosis was categorized as per International classification of Disease (ICD) 10 classification of 2010.[2]

In-complete entries were not included in the study. Data was retrieved to observe the pattern of admissions and seasonal trends for the period of 2016-2017. Appropriate statistical tests were applied and all statistical calculations were performed by using SPSS 16 version. Institutional ethical committee approval was obtained.

RESULTS

Figure 1 shows that Out of the total 4766 admitted patients for infectious and parasitic diseases, 2946 (62%) were females and 1820 (38%) were males.
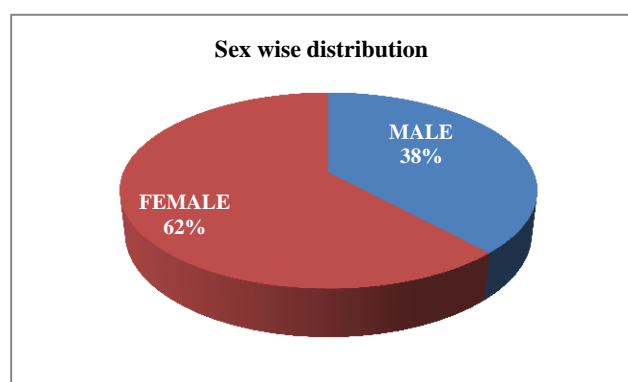

Figure 1: Sex wise distribution of cases.

Figure 2 illustrates that maximum i.e. 1460 (30.63%) admitted patients belong to 15-30 years of age group followed by 1228 (25.77%) of 31-45 years of age. Considering the pediatric age group, 384 (8.06%) under 5 children were admitted while 273 (5.73%) children of 6-14 years were got admitted due to infectious diseases

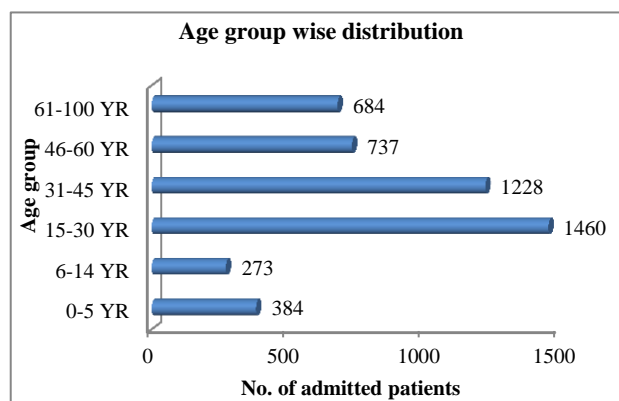whereas 684 (14.35%) geriatric population were admitted.

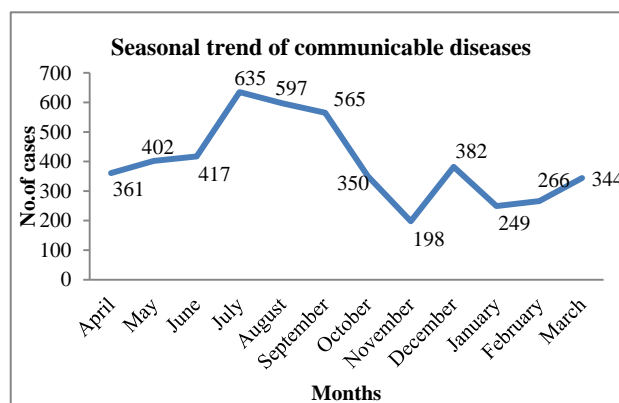**Figure 2: Age group wise distribution of cases.**

Figure 3: Seasonal trend of communicable diseases.

Figure 3 illustrates that Seasonal trend analysis shows an apparent dip in admissions in winter season (October to Jan) and peak in admission in monsoon season (July to Sept.). Maximum admissions were noted in July followed by August and September whereas minimum was noted in November.

Table 1 depicts that of the total admitted patients, 1646 (34.54%) patients were admitted for bacterial cause followed by acute gastroenteritis (AGE) accounting for 1431 (30.03%), Out of which 906 (57.84%) were females. 727 (15.25%) patients were admitted with viral fever with 72.08% female morbidity. 319 (6.69%) patients were diagnosed with pulmonary tuberculosis (PTB) with 174 (54.55%) male and 145 (45.45%) females. Malaria was seen in 117 (2.45%) of total patients having female preponderance 66.66%. 100 (2.10%), 52 (1.09%), 16 (0.34%) patients were admitted for typhoid, Viral Hepatitis and Viral encephalitis respectively. Typhoid, Measles and Extra-pulmonary TB were seen more commonly in male population. In our study, overall morbid conditions were seen more commonly in females and the difference was found to be statistically significant (p< 0.0000001).

Table 1: Distribution of communicable diseases in admitted patients.

Communicable Diseases	Male (%)	Female (%)	Total
All other bacterial diseases	694 (42.16)	952 (57.84)	1646
AGE	525 (36.69)	906 (63.31)	1431
Viral fever	203 (27.92)	524 (72.08)	727
PTB	174 (54.55)	145 (45.45)	319
Malaria	39 (33.33)	78 (66.66)	117
Typhoid	55 (55)	45 (45)	100
V. Hepatitis	24 (46.15)	28 (53.85)	52
V. Encephalitis	6 (37.5)	10 (62.5)	16
Measles	8 (61.54)	5 (38.46)	13
EPTB	9 (75)	3 (25)	12
Other	83 (24.92)	250 (75.08)	333
Total	1820 (38)	2946 (62)	4766

Chi square= 130.2 d.f= 10 p< 0.0000001

DISCUSSION

In the present study out of the total admitted patients 62% were females. Kalyani et al at Hyderabad showed that almost equal sex distribution except in acute diarrheal diseases and diphtheria where slight female predominance was seen.[3] Lagdir et al in Solapur Maharashtra, observed that among the communicable diseases there was a preponderance of hepatitis (24.7% vs. 19.6%), typhoid (6.5% vs. 3.8%), malaria (44.1% vs. 43.5%), meningitis (81.7% vs. 63.9 %) and measles (77.8% vs. 35.5%) in males, whereas acute diarrhoeal diseases (76.6% vs. 68.8 %), dengue fever (56.5% vs. 55.9%), swine flu (36.1% vs. 18.3%) and diphtheria (64.5% vs.22.2%) were more commonly reported in females.[4] Datta et al conducted a study in Tripura to assess morbidity profile, in which majority (50.93%) of the study participants were females and belonged to 19-59 years age group (32.78%)[5] Ranjeeta Kumari et al conducted a study in Kanpur.[6] A total of 6838 patients had been treated, which included 2707 (39.59%) males and 4131 (60.41%) females which are similar to our study.

In the present study majority i.e. 56.40% patients admitted in the most productive age group (15-45 Years) followed by 14.35% and 8.06% geriatric population and under 5 children respectively. In the 3 year morbidity study conducted by D Kalyani et al in Hyderabad, maximum (34.43%) of communicable cases were seen in 11 to 20 years of age group.[3] Datta et al found that majority of study participants belonged to 19 – 59 years age group (32.78%) which coincide with our findings.[5] A study conducted in Chandigarh by Goel et al observed that more than half (62.35%) of the morbidities were reported among persons more than 15 years of age.[7]

In the present study peak admission was seen in monsoon season (July to Sept.) whereas dip was noted in winter season (Oct to Jan). The study done in Hyderabad by Kalyani et al showed increase in number of viral fevers and its gradual rise beginning in September, October, the plateau in April, May and June, the decline in January and February and succeeding months whereas the low incidence during March, July and December.[3] Acute diarrheal diseases showed an increase in the months of March and July and plateau was seen in March, April, May, and June whereas the decline in December. A similar upsurge of Hepatitis, Rabies, tetanus, Cholera, Food poisoning was seen. Lagdir et al revealed an increase in the number of cases suffering from acute diarrhoeal diseases in the months of June to September i.e. monsoon season.[4] Our study findings are similar to these studies. A study conducted in Government Medical College, Chandigarh; differ for seasonal variation as found in our study, with most cases of ADDs (38.89%) and pulmonary tuberculosis (4.68%) in summer, and typhoid (1.57%) and viral hepatitis (1.23%) in the monsoon season.[8] Kumari et al conducted a study in Kanpur in which the seasonal distribution of the other infectious diseases revealed that almost all the diseases had a seasonal variation with the peaks occurring in the months of July and August.[6] A study conducted in Chandigarh by Goel et al observed that In 2009, maximum morbidities were observed in rainy season followed by winter and then summer and this difference was found to be statistically significant (p=0.00).[7] Acute diarrhoeal disease (ADD) cases were reported significantly more during summer seasons (47.91%) as compare to winter and rainy seasons.

In the present study majority i.e. 34.54% patients were admitted for bacterial cause followed by acute gastroenteritis (AGE) accounting for 1431 (30.03%), Out of which 906 (57.84%) were females. 727 (15.25%) patients were admitted with viral fever with 72.08% female morbidity. 319 (6.69%) patients were diagnosed with pulmonary tuberculosis (PTB) with 174 (54.55%) male and 145 (45.45%) females. Malaria was seen in 117 (2.45%) of total patients having female preponderance 66.66%. 100 (2.10%), 52 (1.09%), 16 (0.34%) patients were admitted for typhoid, Viral Hepatitis and Viral

encephalitis respectively. Typhoid, Measles and Extra-pulmonary TB were seen more commonly in male population. In our study, overall morbid conditions were seen more commonly in females. Kalyani et al conducted a 3 year morbidity profile study in Hyderabad where they found the most common disease seen in all three years was viral fever with 8713 cases (28.96%) followed by acute diarrheal diseases with 7965 cases (26.52%) which was similar to our study.[3] Enteric fevers in 2958 cases (9.83%) and Malaria in 2443 (8.12%) cases. Rabies was least commonly seen only in 80 (0.26%) cases and followed by Pertussis 37 (0.12%). Gaikwad et al conducted a study in Solapur in which it was observed that acute diarrhoeal diseases(39.3%) were the most commonly diagnosed diseases, similar to our study, followed by dengue fever (13%), hepatitis (12%), meningitis (10.4%), malaria (10.1%), measles (4.7%), swine flu (3.6%), typhoid (2.8%), diphtheria (2.5%), chickenpox (1.1%) and tetanus (0.2%) in decreasing order.[4] In the study conducted in Tripura by Datta et al the commonest type of morbidity was found to be acute respiratory infections (31.10%).[5] In Kumari et al Kanpur study, it was observed that skin infections were the most commonly diagnosed diseases followed by the acute respiratory tract infections (ARI).[6] Second only to the group of infectious and other communicable diseases, the water-borne communicable diseases (16.9%), which accounted mainly of the diarrheal disease and worms' infestation, were found to be the major contributors to the morbidity.

CONCLUSION

On the basis of the finding, it was concluded that AGE was most common morbid condition in hospitalized patient. Peak of admission was noted in monsoon whereas dip was in winter season. Similarly, overall morbid condition was seen most commonly in females. Many diseases have a seasonal variation and the burden of these diseases could be reduced if we take measures to detect the changes in their trend through the implementation of surveillance programs.

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